UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,155	12/16/2005	Seiji Mizohata	Q91918	9130

23373 7590 02/08/2011
SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
GRAY, JILL M	

ART UNIT	PAPER NUMBER
1798	

NOTIFICATION DATE	DELIVERY MODE
02/08/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

sughrue@sughrue.com
PPROCESSING@SUGHRUE.COM
USPTO@SUGHRUE.COM

Office Action Summary	Application No.	Applicant(s)	
	10/561,155	MIZOHATA ET AL.	
	Examiner	Art Unit	
	Jill Gray	1798	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11/23/2010 and 12/08/2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,5,8-10 and 21-24* is/are pending in the application.

4a) Of the above claim(s) *24* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5,8-10 and 21-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Newly submitted claim 24 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: this claim is drawn to a method and includes the method step of "preparing a fabric." The invention currently under prosecution is drawn to a fiber, or more specifically, a product.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 24 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Response to Arguments

2. Applicant's arguments filed November 23, 2010 have been fully considered but they are not persuasive.

Applicants argue that in the publication, polybutylene terephthalate is only explained as an example of the hard segment and polyoxyethylene glycol is only explained as an example of the soft segment. Applicants further argue that a generic polyether ester elastic fiber comprising a polyether ester elastomer containing a polybutylene terephthalate a hard segment and polyoxyethylene glycol as a soft segment, and also a polyether ester elastic fiber including a poly(tetramethyleneoxide) glycol as a soft segment does not increase the fiber length when absorbing water, because both the hard segment and soft segment are hydrophobic unlike polyether ester elastic fibers having hydrophilic properties. Applicants also argue that the

polyether ester copolymers of Examples 1-14 of the publication have an intrinsic viscosity of 1.35.

In this regard, the fact that the publication specifically discloses polybutylene terephthalate as an example of a hard segment and polyoxyethylene glycol as an example of a soft segment would have provided clear direction to the skilled artisan that a polyether elastic fiber comprising those two segments could be produced with a reasonable expectation of success. In addition, the publication discloses that the intrinsic viscosity of the copolymer can range from 1.0 to 3.0. See page 4, lines 34-36. This range overlaps the range contemplated by applicants of 0.9 to 1.2. It is the examiner's position that where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim,* 541 F.2d 257, 191 USPQ 90 (CCPA 1976) and *In re Woodruff,* 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Also, while the Examples in the publication disclose an intrinsic viscosity of 1.35, it is the examiner's position that disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments, which in the present case would be 1.0 to 3.0. See MPEP 2123. As to the prior art fiber being hydrophobic, it is noted that the publication teaches that his polyether ester fibers can contain the same components as the fibers of the present invention, hence, the prior art fibers can be formed from a composition that is the same as or substantially similar to that contemplated by applicants. The same composition necessarily has the same properties. Furthermore, the test for obviousness under 35 U.S.C. 103 is not the express suggestion of the claimed invention in any or all

of the references but what the references take collectively would suggest. *In re Conrad,* 169 USPQ 170 (CCPA 1971).

Applicants argue that Shizuki discloses an antistatic fiber which is different from the present invention which comprises at least one of polyoxyalkylene glycol and its derivatives and treated with a weight decreasing agent, further arguing that Shizuki only teaches the thermoplastic polymer is dyable with a basic dye which comprises at least one ester-forming group and organic sulfonate as a optional component. Accordingly, Shizuki does not teach which polymer should be chosen to obtain a fiber which extends not less than 10% in length by absorbing water even if the polymer contains the organic sulfonate and the examples disclose only a polymer having an intrinsic viscosity of 0.410 to 0.640.

In response thereto, Shizuki teaches that his fiber comprises a fiber-forming thermoplastic polymer such as polyetheresters, polyoxyalkylene glycol, and an organic sulfonate of the type contemplated by applicants. Shizuki teaches the inclusion of the same type of organic sulfonate additive as applicants. Identical compounds are expected to have identical properties. The fact that applicants use his compounds for a different purpose is of no moment. Moreover, it is noted that claim 1 is not specific as to any amount of either of the components of the fiber composition. Also, Shizuki provides clear direction to the skilled artisan that polyetheresters can be used as his polymer.

Applicants argue that Azuse does not teach a polyether ester elastomer copolymerized with a metal organic sulfonate.

In this regard, the teachings of Azuse are relied upon for all that they would have reasonably conveyed to one having ordinary skill in this art at the time the invention was made, namely, that the use of silicone finishing compositions for elastic fibers is known in the art. Furthermore, the test for obviousness under 35 U.S.C. 103 is not the express suggestion of the claimed invention in any or all of the references but what the references take collectively would suggest. *In re Conrad,* 169 USPQ 170 (CCPA 1971).

Applicants argue that none of EP 0821086, Shizuki and Azuse teach or suggest that the polyether ester elastic fiber comprising a polyether ester elastomer containing polybutylene terephthalate as a hard segment and polyoxyethylene glycol as a soft segment, and the polyether ester elastomer copolymerized with a metal organic sulfonate represented by the general formula (I) and having an intrinsic viscosity of the elastic fiber is 0.9 to 1.2 gives a coefficient of water absorption extension of not less than 10%, and the polyether ester elastic fiber gives a fabric having a good moisture-absorbing property and is reversibly largely expanded or contracted by the absorption or release of water to exhibit excellent comfortableness.

In this regard, it is the examiner's position that the combined teachings of EP 0821086, Shizuki, Azuse would have rendered obvious a polyether ester fiber comprising a polybutylene terephthalate as a hard segment and polyoxyethylene glycol as a soft segment, and the polyether ester elastomer copolymerized with a metal organic sulfonate represented by the general formula (I) and having an intrinsic viscosity of the elastic fiber is 0.9 to 1.2. Furthermore, it is the examiner's position that the fiber of the prior art would be substantially the same as the fiber of the present invention, and

thus the properties such as a coefficient of water absorption extension of not less than 10% and good moisture-absorbing property and is reversibly largely expanded or contracted by the absorption or release of water to exhibit excellent comfortableness, would be the same as well, in the absence of clear factual evidence to the contrary.

Applicants argue that the cited references do not teach a woven or knitted fabric comprising the aforementioned elastic fibers has the so-called self-adjusting function.

As set forth previously, the combined prior art teachings would have provided a suggestion to the skilled artisan for an elastic fiber of the type contemplated by applicants. Accordingly, it is the examiner's position that the properties of the prior art product would be the same in the absence of factual evidence to the contrary.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, 3, 5, 8, and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Publication EP 821,086 (the publication) in view of Shizuki et al., 4,600,743 (Shizuki).

Regarding Independent claim 1

The publication discloses polyether ester elastic fibers comprising a polybutylene terephthalate and at least one alkali metal salt of an organic sulfonic acid. In addition, the publication discloses that the polyether ester elastomer contains polybutylene terephthalate as a hard segment and polyoxyethylene glycol as a soft segment. See entire document, and for example, abstract, page 3, lines 50-57 and page 4, lines 1-5.

The publication discloses that his organic sulfonic acid can be a benzenesulfonate but does not specifically teach those compounds as set forth in present claim 1. Additionally, the publication is silent as to the coefficient of moisture absorption and coefficient of water absorption extension and intrinsic viscosity.

Shizuki teaches fibers obtained by melt-spinning a fiber forming thermoplastic polymer containing a polyoxyalkylene glycol. See entire document, and for example, abstract. Shizuki teaches that the thermoplastic polymer can be polyesters or polyether esters, further teaching that the polyester can be polybutylene terephthalate. Note column 4, lines 49-54. In addition, Shizuki teaches that his polyesters contain other optional components such as organic sulfonates that are substantially of the type contemplated by applicants. See column 4, lines 56-68. Also, Shizuki teaches that the inclusion of such organic sulfonates results in fibers having good wicking properties and dyeability and antistatic properties. See column 5, lines 13-32.

It would have been obvious to one having ordinary skill in the art to modify the polybutylene terephthalate of the publication by adding an organic sulfonate during the polymerization process, wherein said organic sulfonate is a benzene sulfonate, as taught by Shizuki with the reasonable expectation of success of producing a fiber having good wicking properties, antistatic properties and dyeability.

As to the specific organic (benzene) sulfonate, Shizuki teaches compounds that are substantially similar to those contemplated by applicants such as sodium 3,5-bis(carbo-β-hydroxyethoxy)-benzenesulfonate. It is the examiner's position that the requirement for the specific metal organic sulfonates of present claim 1 are no more

than the preferential selection of a known material based on its suitability for its intended use, and thus is *prima facie* obvious, in the absence of clear factual evidence on this record of unexpected properties in the polyether ester fiber, wherein said properties are directly related to the specific organic sulfonate.

As to the coefficient of moisture absorption and coefficient of water absorption extension, and intrinsic viscosity of the fiber, it is the position of the examiner that the fiber of the prior art is substantially the same as that fiber of the present invention. Moreover, Shizuki teaches enhanced wicking properties based upon the inclusion of an organic sulfonate (column 5, line17). Therefore, the examiner has reason to believe that properties such as the coefficient of moisture absorption, coefficient of water absorption, and intrinsic viscosity are the same or substantially similar so as to render obvious the present requirements, in the absence of factual evidence to the contrary. Applicants are invited to provide such evidence.

Therefore, the combined teachings of the publication and Shizuki would have rendered obvious the invention of present claim 1.

Regarding dependent claims 3, 5, 8 and 21-23

Regarding claim 3, as set forth above, it is the position of the examiner that the fiber of prior art is substantially the same as that of the fiber of the present invention, and for reasons stated above, the examiner has reason to believe that this property of the prior art fiber would be within the present claimed range in the absence of factual evidence to the contrary.

Regarding claim 5, Shizuki teaches the inclusion of the organic sulfonate in an amount of 0.5 to 5 mol%. See column 5, lines 25-30.

Regarding claim 8, the publication discloses that the soft segments are present in an amount of 30-80% by wt. This teaching obvious the present claimed ratio. See page 4, lines 28-31.

As to claims 21-23, the publication discloses the formation of fabrics. See pages 2, line 12, page 7, lines 7-9 and page 10, lines 44-56. It would have been an obvious expedient to the skilled artisan form stretchable clothing such as socks or underwear using the elastic fabrics. Hence, the requirements of these claims are not construed to be a matter of invention.

Therefore, the combined teachings of the publication and Shizuki render obvious the invention as claimed in present claims 1, 3, 5, 8, and 21-23.

5. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Publication EP 821,086 (the publication) in view of Shizuki et al., 4,600,743 (Shizuki) as applied above to claims 1, 3, 5, 8 and 21-23, and further in view of Azuse et al., 2003/0024052 (Azuse).

The publication in view of Shizuki is as set forth above but does not teach the application of a finishing oil.

Azuse teaches a finishing composition for elastic fibers comprising lubricants of the type contemplated by applicants, such as silicones. See entire document, and for example, abstract and [0110]. Azuse teaches that the application of the finish prevents tack during processing and enhances the antistatic properties of the fiber.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of the publication by applying a finishing oil as required by applicants and as taught by Azuse, in order to enhance the antistatic properties of the fiber and prevent tacking during processing. As to the amount of add-on, this amount would have been obvious to determine for optimization purposed during routine experimentation.

As to claim 10, Azuse teaches a finishing oil of the type contemplated by applicants, thus it is the position of the examiner that properties such as the viscosity would be similar to those of the present invention, in the absence of factual evidence to the contrary.

Therefore, the combined teachings of the publication, Shizuki and Azuse would have rendered obvious the invention as claimed in present claims 9 and 10.

6. Claims 1, 3, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shizuki et al., 4,600,743 (Shizuki) as applied above to claims 1, 3, 5.

Regarding Independent claim 1

Shizuki is as set forth above and incorporated herein. In particular Shizuki teaches fibers obtained by melt-spinning a fiber forming thermoplastic polymer containing a polyoxyalkylene glycol. See entire document, and for example, abstract. Shizuki teaches that the thermoplastic polymer can be polyesters or polyether esters, further teaching that the polyester can be polybutylene terephthalate and the polyoxyalkylene glycol can be polyoxyethylene glycol. Note column 1, lines 40-45, column 4, lines 49-54 and column 5, lines 33-65. In addition, Shizuki teaches that his

polyesters contain other optional components such as organic sulfonates that are substantially of the type contemplated by applicants, such as organic (benzene) sulfonate. In particular, Shizuki teaches compounds that are substantially similar to those contemplated by applicants such as sodium 3,5-bis(carbo-β-hydroxyethoxy)-benzenesulfonate. See column 4, lines 56-68.

Also, Shizuki teaches that the inclusion of such organic sulfonates results in fibers having good wicking properties and dyeability and antistatic properties, further teaching that the organo sulfonates can be added during the polymerization of the polyester. See column 5, lines 13-32, and column 7, line 50 through column 8, and line 3.

Shizuki does not teach the specific organic sulfonate as set forth in present claim 1 or the coefficient of moisture absorption and coefficient of water absorption extension and intrinsic viscosity.

As to the specific metal organic sulfonate, it is the examiner's position that the requirement for the specific metal organic sulfonates of present claim 1 is no more than the preferential selection of a known material based on its suitability for its intended use, and thus is *prima facie* obvious, in the absence of clear factual evidence on this record of unexpected properties in the polyether ester fiber, wherein said properties are directly related to the specific organic sulfonate.

As to the coefficient of moisture absorption and coefficient of water absorption extension, and intrinsic viscosity of the fiber, it is the position of the examiner that the fiber of the prior art is substantially the same as that fiber of the present invention. Moreover, Shizuki teaches enhanced wicking properties based upon the inclusion of an

organic sulfonate (column 5, line17). Therefore, the examiner has reason to believe that properties such as the coefficient of moisture absorption, coefficient of water absorption, and intrinsic viscosity are the same or substantially similar so as to render obvious the present requirements, in the absence of factual evidence to the contrary. Applicants are invited to provide such evidence.

Therefore, the teachings of Shizuki render obvious the invention as claimed in present claim 1.

Regarding dependent claims 3 and 5

As to claim 3, it is the position of the examiner that the fiber of prior art is substantially the same as that of the fiber of the present invention, and for reasons stated above, the examiner has reason to believe that this property of the prior art fiber would be within the present claimed range in the absence of factual evidence to the contrary.

As to claim 5, Shizuki teaches the inclusion of the organic sulfonate in an amount of 0.5 to 5 mol%. See column 5, lines 25-30.

Therefore, the teachings of Shizuki render obvious the invention as claimed in present claims 1, 3, and 5.

7. Claims 8 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shizuki et al., 4,600,743 (Shizuki) as applied above to claims 1, 3, 5, in view of European Patent Publication EP 821,086 (the publication), as applied above to claims 1, 3, 5, 8 and 21-23.

Shizuki is as set forth above but does not teach the specific ratio of hard segments to soft segments or the specific formation into fabrics and clothing.

As to claim 8, the publication is as set forth above and teaches that the polyether ester elastomer contains polybutylene terephthalate as a hard segment and polyoxyethylene glycol as a soft segment wherein the publication discloses that the soft segments are present in an amount of 30-80% by wt. See page 4, lines 28-31. The teachings of the publication render obvious the present claimed ratio, hence, it would have been obvious to the skilled artisan to modify the proportions of Shizuki in view of the teachings in the publication during routine experimentation to obtain the optimum proportions. Moreover, it is the position of the examiner that since the result sought and the ingredients used were known, it was within the expected skills of one having ordinary skill in this art to arrive at the optimum proportion of those ingredients, and that any improved results alleged by applicants would have resulted from experimentation of an obvious nature.

As to claims, the publication discloses the formation of fabrics. See pages 2, line 12, page 7, lines 7-9 and page 10, lines 44-56. It would have been an obvious expedient to the skilled artisan to use the fibers of Shizuki to form stretchable clothing such as socks or underwear using the elastic fabrics. Hence, the requirements of these claims are not construed to be a matter of invention.

Therefore, the combined teachings of Shizuki and the publication would have rendered obvious the invention as claimed in present claims 8 and 21-23.

Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shizuki et al., 4,600,743 (Shizuki) as applied above to claims 1, 3, and 5, in view of Azuse et al., 2003/0024052 (Azuse), as applied above to claims 9 and 10.

Shizuki is as set forth above but does not teach the application of a finishing oil to his fibers.

Azuse teaches a finishing composition for elastic fibers comprising lubricants of the type contemplated by applicants, such as silicones. See entire document, and for example, abstract and [0110]. Azuse teaches that the application of the finish prevents tack during processing and enhances the antistatic properties of the fiber.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Shizuki by applying a finishing oil as required by applicants and as taught by Azuse, in order to enhance the antistatic properties of the fiber and prevent tacking during processing. As to the amount of add-on, this amount would have been obvious to determine for optimization purposed during routine experimentation.

As to claim 10, Azuse teaches a finishing oil of the type contemplated by applicants, thus it is the position of the examiner that properties such as the viscosity would be similar to those of the present invention, in the absence of factual evidence to the contrary.

Therefore, the combined teachings of Shizuki and Azuse would have rendered obvious the invention as claimed in present claims 9-10.

No claims are allowed.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill Gray whose telephone number is 571-272-1524. The examiner can normally be reached on M-Th and alternate Fridays 10:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jill Gray/
Primary Examiner
Art Unit 1798

jmg